

INDIVIDUAL DETERMINANTS OF FEMALE LABOR PARTICIPATION IN MOROCCO

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Introduction

It is well known that economic and social development depend, among many other factors, upon a rational exploitation of human resources endowment. In this regard, the contribution of women is crucial to this development. However, the level of participation of women in the labor market remains largely below men's level. Childcare and housekeeping explain partly this weak level of participation. But, other factors related to economic and social environments and to individual characteristics affect significantly the level of women participation in the labor market.

Over the past years, Moroccan women have benefited from several institutional and social reforms guaranteeing wider rights and favoring their emancipation and their contribution to national development. The result of these reforms was a larger participation of women in the politic, economic and social arenas. However, their participation in the labor market has not improved; it has even declined in recent years.

The participation of Moroccan women in the labor market is characterized, as in many Arab and Muslim countries, by a relatively low rate compared to other developed and even developing countries (Table 1). Generalization of schooling has certainly contributed to this decline by reducing the labor market participation rate of women at school age, but cannot alone explain this fact.

Table1. Labor market participation rate in selected countries (in %)

	Women		Men		Total	
	2000	2009	2000	2009	2000	2009
Algeria	31	37	79	80	55	59
Morocco	28	26	81	80	53	52
Tunisia	24	26	72	71	48	48
Jordan	22	23	75	74	50	49
Saudi Arabia	16	17	75	74	49	50
Brazil	55	60	82	82	68	71
Mexico	39	43	83	81	60	61
Chile	36	42	74	73	55	57

Turkey	27	24	74	70	50	47
United States	60	58	74	72	67	65
Germany	49	53	68	67	58	60
France	48	51	63	62	55	56

Source: World Development Indicators, World Bank.

Based on the national employment survey data, this paper aims to identify the determinants of Moroccan women participation in the labor market and to quantify the effect of each of these determinants. The approach adopted is based on binary models where women's participation is the dependent variable.

The paper is divided into three sections. The first one presents a review of the literature on the issue of women participation in the labor market. The second section provides an overview of the situation of women in the labor market in Morocco and the third describes the methodological approach and the obtained results.

1. Literature on women labor force participation

Employment is one of the most studied issues in the economic and social literature. The specific issue of women participation in the labor market supply was considered by several studies in different contexts (different countries, different groups of women, etc.).

Some of these studies are based on the theory which states that women decision to participate to a professional activity is based on a trade-off between paid work and leisure. The individual has an endowment of time that he allocates between work and leisure. The problem is to determine the optimal allocation of this time between work and leisure to maximize utility under the constraints of income and time endowment. The optimal allocation is such that the marginal utility of paid wages is equal to the marginal utility of time spent on leisure. This formalization of time allocation can be generalized to a trade-off between leisure, market work and domestic work. The latter includes children care and housework. Labor supply on the market (against wage) increases if its gains offset the loss in household production and leisure.

In this context, the family situation of a woman is crucial. Indeed, the decision of a married woman regarding labor market participation depends on the degree of labor market participation of her spouse and his income. In addition, the number of children in the household has a significant impact on the participation decision of women in the labor market. Empirical tests of the relationship between fertility and women labor supply tend to argue that fertility has a negative impact on time allocated to the labor market and vice versa.

Human capital theory, on another hand, considers that endowment in terms of human capital (education, knowledge, skills) determines the individual income and hence the labor supply. Education, in this sense, is the main form of investment in human capital. The importance of education was highlighted in several studies showing that education increases women participation in economic activity. Public policies supporting women's education could therefore have a positive impact on their labor market participation.

The outcome of the optimization problem described above is largely affected, in addition to individual characteristics, by the economic and social environment. Family policy (child care benefits, parental leave, etc.) and labor market policies (labor market flexibility, employment incentives, etc.) in particular, have a direct impact on women decision. For example, the level of unemployment, which is dependent on the dynamics of the economy and labor market policies, directly affects the level of women participation. "On one hand, a high rate of female unemployment tends to discourage female participation ; on the other hand, a high male unemployment rate is likely to stimulate women participation as they may enter the labor market to compensate for the loss of family income due to husband unemployment "¹ Jaumotte (2003). The discouraging effect of a high unemployment rate on female participation was also highlighted by Tansel (2001) in the case of Turkey.

In summary, women participation decision in the labor market is determined by a combination of factors that can be classified into three groups. Individual factors, which include, among others, woman's age and level of education. The second group is related to family context and includes household size, number of children of preschool age, activity and income of other household members, etc.). The third group refers to the global environment in relation to public policy incentives to the work of women, the economic situation and the level of attractiveness of the labor market, especially the level of unemployment.

2. Women in the labor market in Morocco

2.1. Participation of women in the labor market

During the past decade, the number of active women (employed and unemployed) aged 15 years and over in Morocco increased from 2.74 million in 2000 to 3.07 million in 2010; i.e. a slight annual increase by 1.13%. During the same period, the number of persons in this age group increased by almost 2% annually. Hence, the labor participation rate of women decreased from 28.1% to 25.9% during the same period, remaining well below men's rate (75% in 2010 and 79% in 2000). This decline has

¹ Translation of the authors.

affected both rural (from 37.5% in 2000 to 36.9% in 2010) and urban women (21.3% to 18.4%).

The level and changes in women labor participation rate vary significantly with age. The observed decline in participation can be attributed mainly to the decline in the participation of young women aged 15 to 24 years (7 points). In contrast, women aged 45 and older are more active today than they were a decade ago. The generalization of schooling over the past years especially for young people aged 15 to 24, explains this change (33.4% of women in this age group were enrolled in 2010 against only 22.6% in 2000).

Table 2. Distribution of women by age and type of activity (in %)

	Year	Employed	Unemployed	Housewives	Pupils or Students	Other inactive	Total	Participation rate
0-14 years	2000	4.8	0.0	6.3	43.5	45.4	100	4.8
	2010	1.4	0.0	2.7	63.6	32.3	100	1.4
15-24 years	2000	21.7	4.1	50.7	22.6	0.9	100	25.8
	2010	15.9	3.1	46.8	33.4	0.9	100	19.0
25-34 years	2000	26.8	7.6	63.1	1.3	1.1	100	34.4
	2010	27.0	4.8	65.7	1.4	1.1	100	31.8
35-44 years	2000	30.4	2.2	65.9	0.1	1.4	100	32.5
	2010	28.9	2.2	67.3	0.2	1.4	100	31.1
45-59 years	2000	28.4	0.5	68.0	0.0	3.1	100	28.9
	2010	30.5	0.6	65.4	0.0	3.5	100	31.1
60 +	2000	11.9	0.1	43.6	0.0	44.4	100	12.0
	2010	12.6	0.0	44.6	0.0	42.7	100	12.7
Total	2000	18.3	2.5	41.9	18.8	18.7	100	20.7
	2010	17.6	1.8	43.6	23.7	13.4	100	19.4

Source: National Employment Survey.

In addition to age, women participation in the labor market depends on several factors among which marital status. A single woman is usually, when not at school, more available for work than a married woman. The participation rate of married women is 24% against 30% for singles aged 15 and older. The participation rate reaches 46% for singles aged 25 and older. This observation is valid in urban areas; in rural areas, given the specificities of women labor, marriage does not necessarily affect women's activity.

Notably, divorced women recorded the highest participation rate. Causality in this sense is not necessarily unidirectional. Divorced women may find themselves obliged to work. But, work or the factors that have enabled access to it may be the cause of divorce.

Table 3. Participation rate of women aged 15 years and older by marital status (in%, 2010)

	Single	Married	Widowed	Divorced	Total
Urban	28	12	10	46	18
Rural	32	41	27	43	37
Total	30	24	17	45	26

Source: National Survey on Employment.

It should be noted that rural women are much more active than their urban counterparts. Among the married for example, the rate is almost four times higher in rural areas than in urban areas.

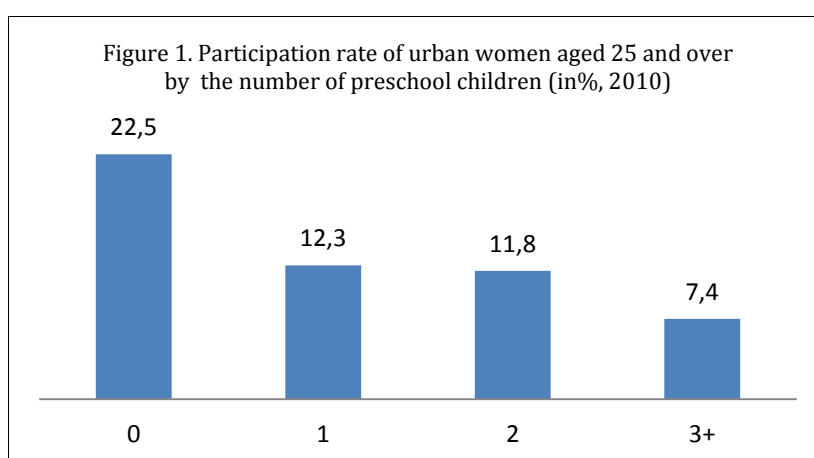
By level of qualification, labor force participation is the highest among women holding advanced degrees. This is consistent with the theory as explained in the previous section. It should be reminded however, that these women represent only 5.5% of all women aged 15 and older. Like their male counterparts, holding a diploma, a condition of a decent job, can be a barrier to access to employment as evidenced by the high unemployment rate recorded among this population group (Table 6).

Table 4. Participation rate of women by the level of degree (in%, 2010)

	Without any degree	Medium level degree	High level degree	Total
Participation rate	26	17	52	26

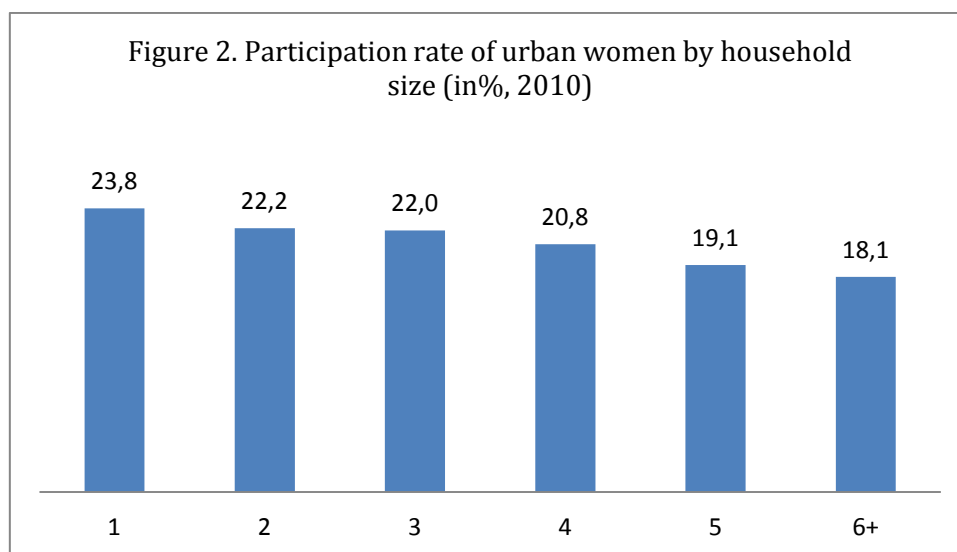
Source: National Survey on Employment.

Another determinant of women participation in the labor market is the number of children. Children care is often a reason of the absence of women from the labor market. In the particular case of urban women, the participation rate decreases from 22.5% among women without children to 7.4% among those with three or more children.



Source: National Survey on Employment.

The same trend is observed if we consider household size to understand women participation. Women living in large households are generally less involved in economic activity than those living in small households.



Source: National Survey on Employment.

2.2. Female employment in Morocco

In Morocco, the number of women working in 2010 was 2.8 million among an employed population of 10.4 million, i.e. a proportion of 27%. This female population is poorly qualified; nearly six in ten women employed at the national level and 81% employed in rural areas are illiterate. Nearly three in four employed women have no qualification, 13.4% have a medium level degree and 12.8% have a high level degree.

In most cases, women work inside the household (almost 50% of women at the national level), but this is mainly a rural feature (74.7% in rural areas against 5% in cities). Otherwise, nearly 35% of women work as wage-earners and 15.1% as independents.

Agriculture dominates women employment, six out of ten women work in this sector (rate unchanged since 2000); 25.6% are employed in services and 13.8% in industry including handicrafts.

Services dominate women's employment in urban areas (63.3%) while in rural areas, more than nine out of ten women work in agriculture, forestry and fishing (93.1%).

Regarding practiced profession, six women in ten work as laborers, 10.4% as skilled workers or artisans of handicrafts, 10.1% as farmers and only 2.1% work as senior officers.

In terms of quality, despite many improvements in recent years, female employment is still characterized by insecurity at several levels. Almost half of female work is unpaid; only 17.6% of employed women benefit from medical insurance (against 10.8% in 2000) and 57% of employed women work without any contract (66.4% in 2000). Obviously, this situation is not without discouraging entry into the labor market.

Table 5. Some indicators of female employment quality (in %)

		2000	2010
situation in the profession	Paid work	46.0	51.4
	Unpaid work	54.0	48.6
	Total	100.0	100.0
Medical insurance	insured	10.8	17.6
	Not Insured	89.2	82.4
	Total	100.0	100.0
Type contract	Don't have a contract	66.4	57.0
	Have a verbal contract	1.7	4.0
	Have a written contract of unlimited duration	28.8	32.0
	Have a written contract of limited duration	3.1	7.0
	Total	100.0	100.0

Source: National Survey on Employment.

A notable findings, women are relatively less affected by under-employment, they recorded a rate of 6.2% (9.1% in urban areas and 4.5% in rural areas) against 13.6% for men (10.2% against 17.6%). However, before getting a job, women suffer relatively more from unemployment than men, especially for the qualified among them.

Table 6. Unemployment rate by educational level, age and gender (%)

	2000		2010	
	Women	Men	Women	Men
Urban	26.7	19.8	19.8	12.1
Rural	1.7	6.5	2.0	4.8
Total	12.8	13.6	9.6	8.9
without any diploma	4.3	8.1	3.2	5.0
Diploma of medium level	33.0	25.3	22.1	14.8
Diploma of high level	39.2	23.9	25.3	14.3
Total	12.8	13.6	9.6	8.9
15-24 years	15.8	21.1	16.1	18.1
25-34 years	22.1	19.8	15.2	11.9
35-44 years	6.6	7.5	6.9	4.9

45 +	1.5	3.0	1.6	2.3
Total	12.8	13.6	9.6	8.9

Source: National Employment Survey.

3. Determinants of women labor force participation

As stated in the previous sections, if the decline in women participation in labor market can be partly explained by the generalization of schooling, its other determinants remain to be identified and quantified. Socio-cultural factors (e.g., traditions, gender policies, employment policies, etc.) explain the differences in levels of female participation from one country to another; structural or cyclical levels of employment and its quality may also encourage women to enter or exit from the labor market. The impact of such factors can be measured using appropriate methodologies. The aim of this paper is to identify and assess, beyond these factors, microeconomic or individual determinants of female participation in the labor market. To identify these factors and assess their impact, we consider data from the national employment survey and we use binary econometric models.

Given the specificity of the Moroccan labor market, we consider only urban women. Employment in rural areas remains characterized by a larger participation (compared with urban) of women and remains concentrated in agriculture and often unpaid.

To control for the effect of schooling, we consider only urban women aged 25 and above. Below this age, many women are still at school or university and are hence inactive. Beyond 25 years, education is usually completed and is no longer a reason for the absence from the labor market.

DATA

The data used in this paper come from the National Employment Survey (ENE). This annual survey covers nearly 60,000 households, of which 40,000 live in urban areas. To capture the evolution over time of the determinants of participation of women, we consider data of two different years (2000 and 2010).

By selecting only the urban women aged 25 and over, the sample size for 2010 is 45,211 women, 19.4% of them are active. In 2000, the sample includes 35,036 urban women aged 25 and over; 21.6% of them are active.

The dependent variable to explain is the participation to the labor market. It is a binary variable that takes the value 1 if the woman is active (employed or unemployed) and zero otherwise. After several rounds of selection among a set of potentially explanatory variables, those selected are the woman's age and its square to account for the variation in its effect, marital status; the qualification is considered

through the level of the degree with two binary variables (medium and high level), the third modality (no degree) is not included in the model and thus serves as a reference. Two other variables are included in the model; the number of children under 5 years in the household and the ratio of number of employed persons in the household (not including the observed woman) to the overall size of the household (including women).

It is important to note that some of these variables may be endogenous (two-way causality), the treatment of this problem through the method of instrumental variables, is not considered in this paper. It will be a subject of a further deepening.

List of model variables

AGE	: Age of the woman in years ;
AGE_CARR	: age squared;
EM_MAR	: Binary variable = 1 if the woman is married and 0 otherwise;
EM_VEUVE	: Binary variable = 1 if the woman is a widow and 0 otherwise;
EM_DIV	: Binary variable = 1 if the woman is divorced and 0 otherwise;
ND_MOY	: Binary variable = 1 if the woman has a medium level degree and 0 otherwise;
ND_SUP	: Binary variable = 1 if the woman has a higher degree and 0 otherwise;
NENF_0_5	: Number of children under 5 in the household;
Ratio	: Number of employed persons in the household (not including observed womn) reported to the household size.

Table 7. Logistic regression results

Variable	2000		2010	
	Coefficient	Std. Error	Coefficient	Std. Error
Constant	-4,540*	0,217	-5,199*	0,207
Age (year round)				
AGE	0,194*	0,010	0,225*	0,010
AGE_CARR	-0,002*	0,000	-0,003*	0,000
Level of degree (the reference category is "no degree")				
ND_MOY	0,940*	0,038	0,545*	0,034
ND_SUP	2,875*	0,052	2,613*	0,040
Marital status (the reference category is "single")				
EM_MAR	-1,419*	0,043	-1,509*	0,038
EM_VEUVE	-0,183*	0,068	-0,393*	0,062
EM_DIV	0,601*	0,063	0,532*	0,058
Family environment				
NENF_0_5	-0,150*	0,032	-0,297*	0,033

RATIO	0,544*	0,092	0,605*	0,081
Number of observations	35036		45211	

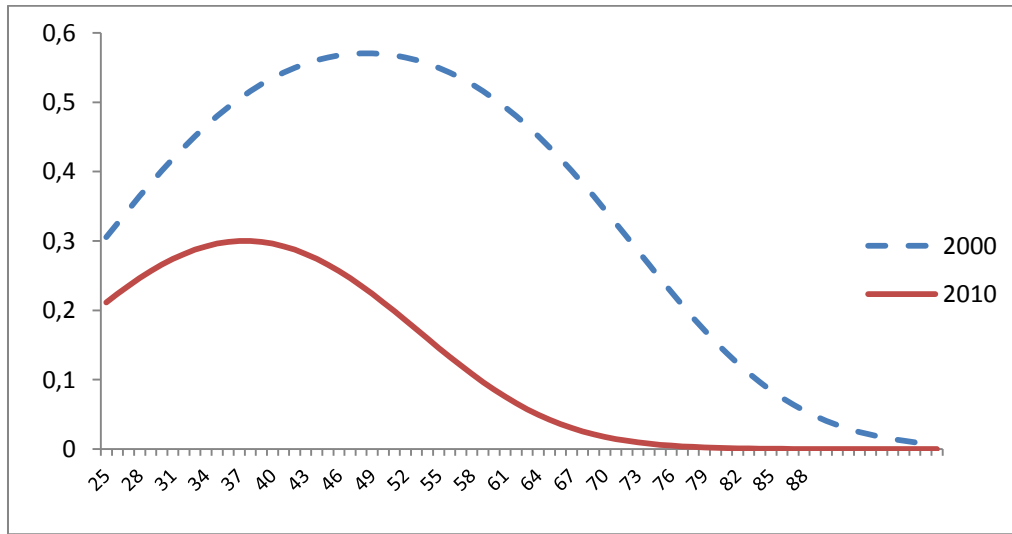
(*) Significant at 5%.

RESULTS

With the exception of one variable (ratio of employed persons to household size), the results of the logistic model to both data of 2000 and those of 2010, confirm the theoretical and empirical evidence presented in the previous two sections. Indeed, the probability that a woman participates in the labor market increases with age. But, from a certain threshold, the positive effect of age begins to decline. This finding is illustrated by the negative coefficient of the squared age variable. This turning point is in net decline since 2000. It is estimated at 49 years in 2000 and at 38 years in 2010.

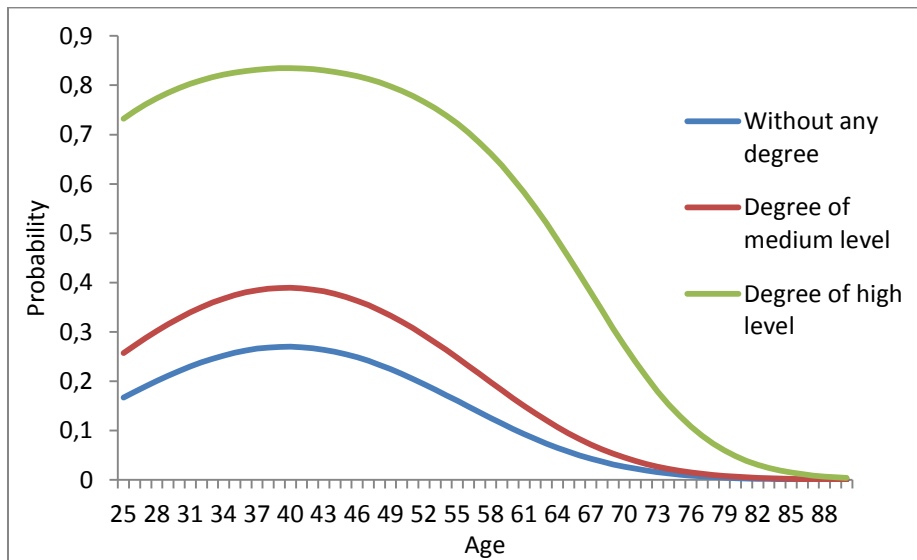
The chart below shows the probability of labor market participation for a single woman without a degree in households where the ratio of employed to household size is fixed at the average level in the sample (0.22).

Figure 3: Probability of labor participation for a single woman without any degree



The model results show also that graduated women are more active than those without any degree, the coefficients of level of degree variables are largely positive. In addition, a woman with an advanced degree has a much higher chance to be active than a woman with a degree of medium level. The chart below presents the probability of labor participation by age and level of degree, for the same characteristics specified above, for the year 2010.

Figure 4: Probability of participation for a single woman by degree level



Marital status is a significant determinant of women labor participation. All things being equal compared to singles, divorced women are more active and married ones are less active. An urban married woman aged 25-years or above is four times less likely to be active than urban singles and six times less than urban divorced. In addition to marriage, the presence of young children further

reduces the chance of women to be active. All things being equal, children are more binding in 2010 than they were in 2000, changes in the organizational structure of the family could be one of the factors explaining this finding.

Finally, the ratio of number of employed (not including observed women) to household size positively affects the participation of women in the labor market.

From the results in this paper, it appears that for urban women, education is the main key to enter the labor market. This entry does not guarantee access to employment, it may even be a barrier given the high unemployment level of qualified persons.

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